ZHDANOV, G.F.; VOROB'YEV, A.N.

With the same equipment twice as much mineral wool. Stroi. mat. 11 no.4:4-5 Ap '65. (MIRA 18:6)

1. Glavnyy inzhener Voronezhskogo zavoda silikatnogo kirpicha (for Zhdanov). 2. Nachal'nik konstruktorskogo byuro Voronezhskogo zavoda silikatnogo kirpicha (for Vorob'yev).

YEPANESHNIKOV, M.M., kand.tekhn.nauk; ZHDANOV, O.I.

Tables of coefficients for a lighting system with standard fixtures. Svetotekhnika 6 no. 12:23-26 D '60. (MIRA 14:1)

1. Moskovskiy energeticheskiy institut.
(Electric lighting--Tables, calculations, etc.)

ZHDANOV, G.I.

AFONIN, K.B.; BURTSEV, K.I.; BYSTROV, S.N.; VINETS, G.B.; VODNEV, G.G.; VORONIN, A.S.; GEVLICH, A.S.; GRYAZNOV, N.S.; GUDIM, A.F.; GUSYATINSKIY, M.A.; DVORIN, S.S.; DIDENKO, V.Ye.; DMITRIYEV, M.M.; DOUDE, M.M.; DOROGOBID, G.M.; ZHDANOV, G.I.; ZAGORUL'KO, A.I.; ZELENETSKIY, A.G.; IVASHCHENKO, Ya.N.; KAFTAN, S.I.; KVASHA, A.S.; KIREYEV, A.D.; KLISHEVSKIY, G.S.; KOZYREV, V.P.; KOLOBOV, V.N.; LGALOV, K.I.; LEYTES, V.A.; LERNER, B.Z.; LOBODA, N.S.; LUBINETS, I.A.; MANDRYKIN, I.I.; MUSTAFIN, F.A.; NEMIROVSKIY, N.Kh.; NEFEDOV, V.A.; OBUKHOVSKIY, Ya.M.; PERTSEV, M.A.; PETROV, I.D.; PODOROZHANSKIY, M.O.; POPOV, A.P.; RAK, A.I.; REVYAKIN, A.A.; ROZHKOV, A.P.; ROZENGAUZ, D.A.; SAZONOV, S.A.; SIGALOV, M.B.; STOMAKHIN, Ya.B.; TARASOV, S.A.; FILIPPOV, B.S.; FRIDMAN, N.K.; FRISHBERG, V.D.; KHAR'KOVSKIY, K.V.; KHOLOPTSEV, V.P.; TSAREV, M.N.; TSOGLIN, M.E.; CHERNYY, I.I. CHERTOK, V.T.; SHELKOV, A.K.

Samuil Borisovich Bamme. Koks i khim. no.6:64 '56. (MLRA 9:10)
(Bamme, Samuil Borisovich, 1910-1956)

ZHDANOV, G.L.; SOROKINA, I.B.; KIRSANOVA, V.A.; SHARLIKOVA, L.F.

Some principles of combined chemotherapy for tumors. Vop. onk. 6
no. 10:77-83 O '60. (MIRA 14:1)
(CYTOTOXIC DRUGS)

ZHDANOV, G.L. (Moskva, 3-ya Meshchanskaya ul., d.62/2, korp.9)

Effect of sarcolysin on proliferating tissue. Vop.onk. 1 no.6: 94-98 '55. (MIRA 10:1)

1. Iz laboratorii eksperimental'noy khimioterpii (zav. chlen-korr. AMN prof. L.F.Larionov) Instituta eksperimental'noy patologii i tera pii raka AMN SSSR (dir. - chlen-korrespondent AMN professor N.N.Blokhin)

(PHENYLALANINE, derivatives,
p-di-(2-chloroethyl) aminophenylalanine, on exper. cancer (Rus))
(NEOPLASMS, experimental,
p-di-(2-chloroethyl) aminophenylalanine (Rus))

SEDOV, K.A.; ZHDANOV, G.L.; SOROKINA, I.B.

Comparative evaluation of the effect of some antibiotics on LA leukemia in C_{57}BL line mice. Antibiotiki 10 no.1:67-71 Ja '65.
(MIRA 18:4)

1. Laboratoriya biologicheskikh ispytaniy Instituta khimii prirodnykh soyedineniy AN SSSR, Moskva.

REZNIKOVA, M.B.; NOVIKOVA, M.A.; ZHDANOV, G.L.;

Activation of certain analogs of amino acids in the presence of the total fraction of pH 5 enzymes of E coli B. Dokl. AN SSSR 161 no.1:125-127 Mr '65. (MIRA 18:3)

1. Institut khimii prirodnykh soyedineniy AN SSSR. Submitted September 21, 1964.

SOROKINA, I.B.; ORESHNIKOVA, N.A.; MAL'KOVA, V.P.; NOVIKOVA, M.A.; ZHDANOV, G.L.

Effect of the content of nicotinamide adenine nucleotide in tumorous and regenerating tissues on their sensitivity to sarcolysine. Vop.med.khim. 11 no.6:43-47 N-D '65. (MIRA 18:12)

1. Institut khimii prirodnykh soyedineniy AN SSSR, Moskva. Submitted July 16, 1964.

NOVIKOVA, M. A.; RYABOVA, I. D.; CHESTUKHIN, A. V.; BORISOVA, G. N.; ZHDANOV, G. L.

"Investigation of influence of some antibiotics and their analogs on induced synthesis in bacteria."

report submitted for Antibiotics Cong, Prague, 15-19 Jun 64.

Inst for Chemistry of Natural compounds, AS USSR, Moscow.

ZHDANOV, G.L.; SOROKINA, I.B.; MAL'KOVA, V.P.; NOVIKOVA, M.A.; CHESTUKHIN, A.V.

Stimulation of cell division by dichloroacetyl compounds. Dokl. AN SSSR 151 no.5:1198-1200 Ag '63. (MIRA 16:9)

1. Institut khimii prirodnykh soyedineniy AN SSSR. Predstavleno akademikom M.M.Shemyakinym.
(ACETIC ACID) (CELL DIVISION (BIOLOGY))

ZHDANOV, G. L.; SOROKINA, I. B.; MAL'KOVA, V. P.; SEMKIN, Ye. P.

Role of individual molecule groupings of N-dichloroacetyl-D, L-serine in its biological activity. Dokl. AN SSSR 147 no.6: 1510-1511 D '62. (MIRA 16:1)

1. Predstavleno akademikom M. M. Shemyakinym.

(Serine) (Regeneration(Biology))

KORNILOVA, T.I.; ZHDANOV, G.L.

Comparison of the anabolic activity of testosterone propionate, 19-nor-D-homotestosterone, and some of its derivatives. Dokl. AN SSSR 145 no.5:1163-1165 '62. (MIRA 15:8)

1. Institut khimii prirodnykh soyedineniy AN SSSR. Predstavleno akademikom M.M.Shemyakinym.
(Testosterone) (Metabolism)

GABRIELYAN, N.D.; NOVIKOVA, M.A.; ZHDANOV, G.I.

Capacity of uridinediphosphoglucose analogs to take part in the biosynthesis of saccharose. Dokl. AN SSSR 151 no.6:1453-1455 Ag '63. (MIRA 16:10)

1. Institut khimii prirodnykh soyedineniy AN SSSR. Predstavleno akademikom M.M.Shemyakinym.

ZHDANOV, G.L.

Quantitative relationship of toxicity and anticancerous activity of five preparations from the group of alkylating agents [with summary in English]. Vop.onk. 3 no.6:678-683 '57. (MIRA 11:2)

1. Is Laboratorii eksperimenal'noy khimioterapii (zav. - chlen-korrespondent AMN prof. L.F.Larionov) Instituta eksperimental'noy patologii i terapii raka AMN SSSR (dir. - chl.-korr. AMN prof. N.N.Blokhin) Adres avtora Moskva, 110, 3-ya Meshchanskaya, d.61/2 korp..9, Institut eksperimental'noy patologii i terapii raka
(CYTOTOXIC DRUGS
quantitative relation between tox. & cytotoxic activity of 5 alkylating agents)

ZHDANOV, G.L.; SHARLIKOVA, L.F.

Appearance of drug resistance to alkylating agents in Jensen's sarcoma and its clones. Vop.onk. 7 no.12:26-31 '61. (MIRA 15:1)

1. Iz laboratorii eksperimental'noy khimioterapii (zav. - chlen-korrespondent AMN SSSR prof. L.F. Larionov) Instituta eksperimental'noy i klinicheskoy onkologii AMN SSSR (dir. - deystvitel'nyy chlen AMN SSSR prof. N.N. Blokhin). Adres avtorov: Moskva, Volokolamskoye shosse, 30, Institut eksperimental'noy i klinicheskoy onkologii AMN SSSR.

(CYTOTOXIC DRUGS) (TUMORS)

EXCERPTA MEDICA Sec.16 Vol.6/5 Cancer May 1958

ZHDANOV, G.L.

1918. *Toxicity and anticancerous activity of five compounds of the alkylogen group (Russian text)* JDANOV G. L. Inst. of Exp. Pathol. and Ther. of Cancer, Moscow *Vop. Onkol.* 1957, 3/6 (678-683) Graphs 1 Tables 1

Experiments on rats. The compounds tested were: (1) methyl-di(β-chloroethyl)-amine (embichine); (2) methyl-β-chloroethyl-β-chloropropylamine (embichine II); (3) 4-methyl-5-di-(β-chloroethyl)aminouracil (dopan); (4) DL-p-di-(β-chloroethyl)-aminophenylalanine (sarcolysin); and (5) 2:4:6-triethyleneimine-*s*-triazine (=TET). The ratio LD_{50}:TID_{50} (tumour-inhibiting dose) was considered as the chemotherapeutic index, LD_{50} being the dose that was lethal for half of the animals and TID being the dose that inhibited the growth of rat sarcoma 45 by 50%. This index was for embichine 1.1, for embichine II it was 2.5, for TET 24, for dopan 48 and for sarcolysin 71.

ZHDANOV, G.L.

Rational approach to treating tumors with haloalkylamines and with ethylenimines. Biul.eksp.biol. i med. 40 no.9: 65-69 S '55. (MLRA 8:12)

1. Iz laboratorii eksperimental'noy khimioterapii (zav.-chlen-korrespondent AMN SSSR prof. L.F. Larionov) Instituta eksperimental'noy patologii i terapii raka (dir.-chlen-korrespondent AMN SSSR prof. N.N.Blokhin) AMN SSSR, Moskva.
(TIRETHYLENE MELAMINE, therapeutic use
cancer)
(NITROGEN MUSTARDS, therapeutic use,
2,2'-dichloro-N-methyldiethylamine in cancer)
(NEOPLASMS, therapy,
2,2'-dichloro-N-methyldiethylamine & triethylene melamine)

ZHDANOV, G.L.; SHCHUKINA, L.A.; SOROKINA, I.B.; MAL'KOVA, V.P.; SEDOV, K.A.; RYABOVA, I.D.; SEMKIN, Ye.P.

Study of the biological activity of N-dichloroacetyl-D, L-serine. Dokl. AN SSSR 143 no.5:1222-1224 Ap '62. (MIRA 15:4)

1. Institut khimii prirodnykh soyedineniy AN SSSR. Predstavleno akademikom M.M.Shemyakinym.

(Serine)

ZHDANOV, G. M.

PA 18/49T15

USSR/Electronics
Telemetering
Telemeters

Nov/Dec 48

"Electrical Receivers in Frequency-Pulse Telemetering Systems," G. M. Zhdanov, Moscow Power Eng Inst imeni V. M. Molotov, 13 pp

"Avtomat i Telemekh" Vol IX, No 6

Analyzes performance of electrical condenser receivers in frequency-pulse telemetering systems under the practical condition of irregular pulse flow. Gives formula for determining errors and calculating circuit parameters of receivers.

[redacted] 18/49T15

ZHDANOV, G.M.; BALAKIREV, V.F., redaktor; FRIDKIN, A.M., redaktor.

[Telemetering] Teleizmerenie. Part 1.[Intensity systems] Sistemy intensivnosti. Moskva, Gos.energ.izd-vo.1952.360 p. (MLRA 7:7)
(Remote control)

DRUZHININA, T.N.; NOVIKOVA, M.A.; ZHDANOV, G.L.

Analogs of uridine diphosphoglucose in the reaction with uridine diphosphoglucose-4-epimerase. Dokl. AN SSSR 164 no.5:1175-1178 O '65. (MIRA 18:10)

1. Institut khimii prirodnykh soyedineniy AN SSSR. Submitted December 17, 1964.

ZIDANOV, G.L.; SOROKINA, I.B.; MAL'KOVA,V.P.

Effect of antitumoral compounds on the regeneration of the liver in rats. Dokl. AN SSSR 161 no.5:1235-1237 Ap '65. (MIRA 18:5)

1. Institut khimii prirodnykh soyedineniy AN SSSR. Submitted June 22, 1964.

1. MESHKOV, V. V.: IVANOV, A. P.: KIRILLIN, V. A.: GLAZUNOV, A. A.: PANTYUSHIN, V. S.: ZOLOTAREV, T. L.: BABIKOV, M. A.: FABRIKAN, V. A.: ZHDANOV, G. M.: BEREKALIN, M. A.: KOMAR, V. G.: TALITSKIY, A. V.:

2. USSR (600)

4. Kaganov, I. L. 1902-

7. Professor I. L. Kaganov; fifieth birthday anniversary.
Elektrivhestvo, No.11, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

ZHDANOV, G.M., kand. tekhn. nauk, dots.

Functional rheostat converters in computers; step-by-step and trigonometric rheostats. Trudy MEI no.13:237-256 '53. (MIRA 11:4)

1. Moskovskiy energeticheskiy institut im. V.M. Molotova, Kafedra elektricheskikh schetnykh mashin.
(Calculating machines) (Electric rheostats)

ZHDANOV, G.M., kand. tekhn. nauk, dots.

Electromechnical computers; their functional elements. Trudy MEI no.13:216-236 '53. (MIRA 11:4)

1. Moskovskiy energeticheskiy institut im. V.M. Molotova, Kafedra elektricheskikh schetnykh mashin.
(Calculating machines)

ZHDANOV, G.M.; BALAKIREV, V.F., redaktor; LARIONOV, G.Ye, tekhnicheskiy redaktor.

[Telemetering] Teleizmerenie. Moskva, Gos. energ. izd-vo. Pt.2. [Synchronous-trace and impulse] Sinkronno-slediashchie i impul'snye sistemy. 1953. 415 p. (MIRA 7:12)
(Telemetering)

ZHDANOV, G. M.

Dissertation: "Telemetry." Dr Tech Sci, Moscow Order of Lenin Power Engineering Institute imeni V. M. Molotov, 11 Jun 54. (Vechernyaya Moskva, Moscow, 2 Jun 54)

SO: SUM 318, 23 Dec 1954

ZHDANOV, G.M.

366. Konspekt lektsiy po kursu "Schetnoyeshayushchaya odtomaiia" M., 1954. 23sm. (M-vo vysoh. obrazovaniya SSSR. Mosk. ordena Lenina energet. in-t im. V.M. Molotova). Bepsl. V pek. Razdel 3. Summiruyushchiye i mnozhitel'nodelitel' Nyye ustroystva. 103 s. s chert., 4L. ill. 600 ekz.-bibliogi. V kontse knigi (13 nazv.) (54-55215)

681.14+ (016.3)

SO: Knizhaya, Letopis, Vol. 1, 1955

CHILIKIN, M.G.; KIRILLIN, V.A.; POLIVANOV, K.M.; FABRIKANT, V.A.;
NILENDER, R.A.; KAGANOV, I.L.; IVANOV, A.P.; ZHDANOV, G.M.

Professor V.V.Meshkov. Fiftieth birthday and 25 years of scientific and teaching activity. Elektrichestvo no.1:93 Ja '54. (MLRA 7:2)
(Meshkov, Vladimir Vasil'evich, 1904-)

[illegible] v, G. M.

ZHDANOV, G. M.

"On Designing Systems of Ordinary Differential Equations Using Differential Analyzers," pp 175-182, ill

Abst: An efficient method for construction of equation systems, recommended in those cases when the coefficients of higher derivatives are variable and comples, is presented. The feasibility of introduction into the complex of the integrating machine of several auxiliary follow-up systems which would permit the construction of equation systems without the necessity for solution of relatively higher derivatives is pointed out.

SOURCE: Trudy Moskovskogo Energeticheskogo In-ta im. V. M. Molotova MVO SSSR (Works of the Moscow Energetics Institute imeni, V. M. Molotov of the Ministry of Higher Education USSR), No 18, Electric Vacuum Technology and Instrument Building, Moscow-Leningrad, Gosenergoizdat, 1956

Sum 1854

SOV/112-57-5-10828

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1957, Nr 5, pp 177-178 (USSR)

AUTHOR: Zhdanov, G. M.

TITLE: Setting up Circuits for Ordinary Differential Equations in Differential Analyzers (O postroyenii skhem obyknovennykh differentsial'nykh uravneniy na differentsial'nykh analizatorakh)

PERIODICAL: Tr. Mosk. energ. in-ta, 1956, Nr 18, pp 275-282

ABSTRACT: A possibility is considered in principle of improving modern electromechanical integrating machines intended for automatic solution of ordinary differential equations of any kind: linear, nonlinear, or transcendent with constant or variable coefficients. Operating such machines begins with setting up the circuit for the equation. A circuit for solving a Bessel equation of any order on an electric differential analyzer is given as an example. Before setting up the circuit, the equation should be solved with respect to the highest

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SOV/112-57-5-10828

Setting up Circuits for Ordinary Differential Equations in Differential Analyzers

derivative. Another example is also given, where the solution of an equation with respect to the highest derivative is impossible or uneconomical: $x \sin (y'' - y) + x^2y'' - y' = 0$. The technique of artificially isolating the highest derivative from one of the terms that contains it usually results in an excessively cumbersome circuit and in inefficient utilization of the differential analyzer. The essence of the improved method for setting up the circuit for a differential equation is set forth. Though the above method requires a few more followers in the computing machine, it permits reducing the number of integrators; the method is particularly efficient in cases where the highest derivative has variable and complex coefficients, as in the following equation

$$xyy''' + y'' + y' + \frac{1}{y} = 0.$$

The above statement is confirmed by examples.

B.I.P.

Card 2/2

112-57-7-14988

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1957, Nr 7, p 169 (USSR)

AUTHOR: Zhdanov, G. M.

TITLE: Formation of Functions by Electric Circuits Containing Linear Elements (Obrazovaniye funktsiy elektricheskimi skhemami s lineynymi elementami)

PERIODICAL: Tr. Mosk. energ. in-ta, 1956, Nr 18, pp 282-297

ABSTRACT: A theory of circuits is considered consisting of linear rheostats and fixed resistors that permit obtaining an accurate or an approximate value of various functions. A circuit analysis is presented that consists of a linear rheostat (part of which is shortened by its slider) connected in series with a fixed resistor; such a circuit is an exact replica of the function of the form $y = 1/x$ for certain limits of variations of the argument. In most cases, linear-element circuits permit obtaining approximate values of the function in question that coincide with accurate values only at some points. Such circuits are referred to as linear-circuit type functional approximators. In building such approximators, a circuit should be selected whose general law corresponds to the

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112-57-7-14988

Formation of Functions by Electric Circuits Containing Linear Elements

required function; then, parameters should be calculated on the condition of the coincidence of approximate and accurate function values at a few preset points. As an example of linear-circuit type functional approximator, a circuit is examined that corresponds to the function $y = x^v$ where $0 < v < 1$. An analysis of approximation errors for a few versions of the circuit is made. The theory of the above approximators is illustrated by a number of calculations of the circuits for $y = x^{1+v}$, where $0 < v < 1$; $y = \mathrm{tg}\,x$ where $-1 < x < +1$; $y = \sec x$ where $-1 < x < +1$. For all above functions, several circuit versions are presented that differ in the argument variation range and in operating conditions.

E.I.G.

Card 2/2

ZIMIN, Viktor Aleksandrovich; BARABANOVA, G.K., inzh., retsenzent;
ZHDANOV, G.M., doktor tekhn. nauk, retsenzent; ROGACHEVA,
O.I., inzh., retsenzent; SEMENOVA, Ye.T., inzh., retsenzent;
SHIGIN, A.G., kand. tekhn. nauk, retsenzent; MARTENS, S.L.,
inzh., red.; MODEL', B.I., tekhn. red.

[Electronic calculating machines; fundamentals of theory,
design, and application] Elektronnye vychislitel'nye mashiny;
osnovy teorii, rascheta i primeneniia. Moskva, Mashgiz,
1962. 737 p. (MIRA 15:4)
(Electronic calculating machines)

22408

16.3400

S/042/61/016/001/002/007
C 111/ C 333

AUTHOR: Zhdanov, G. M.

TITLE: On the approximative solution of a system of differential equations of first order with lagging argument

PERIODICAL: Uspekhi matematicheskikh nauk, v. 16, no. 1, 1961, 143-148

TEXT: Let the system

$$y'_i(t) - f_i\,[y] = y'_i(t) - f_i(t, y_1(t), \ldots, y_n(t), y_1(t - \tau_1(t)), \ldots$$
$$\ldots, y_n(t - \tau_n(t)) = 0 \quad (i = 1,2,\ldots,n;\ t_0 \leq t < t_1) \qquad (1)$$

be given, where all $f_i\,[y]$ are continuous in t, $y_i(t)$, $y_i(t - \tau_i(t))$, possess continuous derivatives with respect to $y_i(t)$, $y_i(t - \tau_i(t))$, and where $\tau_i(t) \geqslant 0$. Furthermore let

$$\frac{\partial f_i}{\partial y_k(t)} \geqslant 0, \qquad \frac{\partial f_i}{\partial y_k(t - \tau_k(t))} \geqslant 0 \quad (i,k = 1,2,\ldots, n) \qquad (3)$$

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where the right hand terms are not simultaneously = 0. $y'_i(t_0)$ is defined to be the right derivative. Let f_i for $x = x_0$ be not negative in the first case and not positive in the second case. According to A. D. Myshkis (1) possesses a unique solution which for $t \in E_i \{t - \tau_i(t) \leq t_0\}$ satisfies the initial conditions

$$y_i(t) = \varphi_i(t) \tag{2}$$

where $\varphi_i(t)$ are continuous.

Theorem 1: Let (1) be given, let (2), (3) be satisfied. Let the continuous functions $v_i = v_i(t)$, $u_i = u_i(t)$ with continuous first derivatives be given, where

$$v'_i(t) - f_i\left[v\right] > 0,$$
$$u'_i(t) - f_i\left[u\right] < 0$$

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C 111/ C 333

on $[t_o, t_1)$ and for $t \in E_i \{t - \tau_i(t) \le t_o\}$ let $v_i(t) = u_i(t) = \varphi_i(t)$. Then $u_i(t) < y_i(t) < v_i(t)$ on (t_o, t_1).

Theorem 2: Under the assumptions of theorem 1, from the equations

$$v_{im}(t) = \varphi_i(t_o) + \int_{t_o}^{t} f_i \left[v_{m-1} \right] dt$$

$$u_{im}(t) = \varphi_i(t_o) + \int_{t_o}^{t} f_i \left[u_{m-1} \right] dt$$

and $v_{im}(t) = u_{im}(t) = \varphi_i(t)$ for $t \in E_i \{t - \tau_i(t) \le t_o\}$, where $v_{io} \equiv v_i$, $u_{io} \equiv u_i$ one obtains two sequence of functions $\{v_{im}(t)\}$, $\{u_{im}(t)\}$ The sequence of the upper functions $\{v_{im}(t)\}$ decreases monotonely; the sequence of the lower functions $\{u_{im}(t)\}$

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C 111/ C 333

On the approximative solution ...

increases monotonely.

The second case is considered, where

$$\frac{\partial f_i}{\partial \bar{y}_k(t)} \leq 0, \qquad \frac{\partial f_i}{\partial y_k(t-\tau_k(t))} \leq 0 \qquad (8)$$

where the right hand terms are not simultaneously = 0.

Theorem 3: Let (1), (2), (8) and continuous functions $v_i(t)$ loith continuous derivatives of first order be given, where

$$v'_i(t) - f_i[v] > 0 \qquad (9)$$

on $[t_o, t_1)$ and $v_i(t) = \varphi_i(t)$ is assumed for $t \in E_i\{t - \tau_i(t) \leq t_o\}$.

Let the functions $v_{i1}(t)$ be defined by

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On the approximative solution ... S/042/61/016/001/002/007
C 111/ C 333

$$v'_{i1}(t) = f_i\left[v\right] \tag{10}$$

and $v_{i1}(t) = \varphi_i(t)$ for $t \in E_i\left\{t - \tau_i(t) \le t_0\right\}$. Then it holds

$$v'_{i1}(t) - f_i\left[v_1\right] < 0 \tag{11}$$

on $[t_0, t_1)$, and in a certain interval (t_0, t_2) the $v_{i1}(t)$ are subfunctions

$$v_{i1}(t) < y_i(t) \quad . \tag{12}$$

There is 1 Soviet-bloc reference.

SUBMITTET: June 29, 1959

Card 5/5

[illegible]

ZHDANOV, G.M. [deceased] GRIGORIY MITROFANOVICH

Solving linear partial first-order differential equations by S.A. Chaplygin's method. Izv. vys.ucheb. zav.; mat. no.3:31-36 '62. (MIRA 15:9)

Izvestiya Vysshikh uchebnykh zavedenyy: Matematika

1. Tashkentskiy gosudarstvennyy pedagogicheskiy institut imeni Nizami.

(Differential equations, Linear)

[illegible] [illegible]

[illegible] [illegible] matematika, fiz [illegible]

[illegible] [illegible] M

[illegible] Approximative solution of [illegible]
[illegible] [illegible]

[illegible] [illegible] Zhurnal [illegible]

[illegible] integral equation, [illegible]
[illegible] approximation, [illegible]
solution

TRANSLATION The existence and unique [illegible]

[illegible]

[illegible]

[illegible] [illegible] [illegible]

[illegible] conditions [illegible] [illegible]
differentiated [illegible] is sufficiently small [illegible]

[illegible] obtained [illegible] [illegible]
[illegible] author and [illegible] of [illegible]

SUB CODE: [illegible]

GITIS, Emmanuil Isaakovich. Prinimali uchastiye: SAMOYLENKO, V.I., kand. tekhn. nauk; BALTRUSHEVICH, A.V., kand. tekhn. nauk; ZHDANOV, G.M., prof., retsenzent; KRAYZMER, L.P., kand. tekhn. nauk, retsenzent; FLID, Ya.I., kand. tekhn. nauk, red.

[Automatic control of radio systems; electric and automatic control of radio systems] Avtomatika radioustanovok; elektroradioavtomatika. Moskva, Energiia, 1964. 631 p.
(MIRA 17:11)

ZHDANOV, G.P.

Effect of the forces of friction between the wires of steel ropes on bending stresses during the rope passage over the pulley. Sbor.nauch.trud. KHGI 5:255-263 '58. (MIRA 14:4)
(Wire rope) (Friction)

ZHDANOV, G.P.

Optimum ratio of the pulley-to-rope diameter (D/d) for mine hoisting equipment. Sbor.nauch.trud. KHGI 5:265-269 '58.
(MIRA 14:4)
(Mine hoisting--Equipment and supplies)

ZHDANOV, G.S.,

ZHDANOV, G.S., inzh. (Rostov-na-Donu).

Mechanical fuel feeding. Zhel. dor. transp. 39 no.12:74 D '57.
(Fuel) (MIRA 11:1)

LYUBIMOV, V.N.; VENEVTSEV, Yu.N.; ZHDANOV, G.S.

Ferroelectricity and antiferroelectricity in polar crystals.
Fiz. tver. tela 4 no.8:2123-2127 Ag '62. (MIRA 15:11)

1. Fiziko-khimicheskiy institut imeni L.Ya. Karpova, Moskva.
(Crystals--Electric properties)

LYUBIMOV, V.N.; VENEVTSEV, Yu.N.; SOLOV'YEV, S.P.; ZHDANOV, G.S.;
BAKUSHINSKIY, A.B.

Dipole structure and internal electric fields in $PbZrO_3$.
Fiz.tver.tela 4 no.12:3543-3550 D '62. (MIRA 15:12)

1. Fiziko-khimicheskiy institut im. L.Ya.Karpova, Moskva.
(Lead zirconate—Dipole moments)
(Electric fields)

ZHDANOV, G.S.; SOKLAKOV, A.I.

X-ray diffraction study of radial distribution in amorphous solid solutions of S - As_2S_3. Kristallografiia 7 no.4:555-559 Jl-Ag '62. (MIRA 15:11)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova i Nauchnyy institut udobreniy i insektofungisidov imeni Samoylova. (X rays--Diffraction) (Arsenic sulfide) (Solutions, Solid)

ZHDANOV, G.S.; KISELEV, S.V.; OZEROV, R.P.

Magnetic structure of austenitic steel. Kristallografiia 7 no.4: 619-620 Jl-Ag '62. (MIRA 15:11)

1. Fiziko-khimicheskiy institut imeni L.Ya.Karpova.
(Steel--Magnetic properties)

OZEROV, R.P.; RANNEV, N.V.; PAKHOMOV, V.I.; REZ, I.S.; ZHDANOV, G.S.

Structure of KIO_3 at room temperature. Kristallografiia 7 no.4:620-622 Jl-Ag '62. (MIRA 15:11)

1. Fiziko-khimicheskiy institut imeni L.Ya.Karpova.
(Potassium iodide crystals)

ZHDANOV, G. S.; KISELEV, S. V.; OZEROV, R. P.

"Neutron-diffraction observation of magnetic ordering and determination of atomic displacements in ferroelectric $BiFeO_3$ and related compounds."

report submitted for 6th Gen Assembly, Intl Union of Crystallography, Rome, 9 Sep 63.

Karpov Inst of Physical Chemistry, Moscow.

VENEVTSEV, Yu. N.; ZHDANOV, G. S.; ROGINSKAYA, Yu. Ye.; FEDULOV, S. A.; IVANOVA, V. V.

"Investigation of some solid solutions based on the ferroelectric-antiferromagnetic $BiFeO_3$."

report submitted for 6th Gen Assembly, Intl Union of Crystallography, Rome, 9 Sep 63.

Karpov Inst of Physical Chemistry, Moscow.

TOMASHPOL'SKIY, Yu.Ya.; VENEVTSEV, Yu.N.; ZHDANOV, G.S.

Electron diffraction study of the crystalline structure of $BiFeO_3$. Dokl. AN SSSR 153 no.6:1313-1314 D '63. (MIRA 17:1)

1. Fiziko-khimicheskiy institut im. L.Ya. Karpova. Predstavleno akademikom N.V. Belovym.

SOLOVYEV, S. P.; LYUBIMOV, V. N.; VENEVTSEV, Yu. N.; ZHDANOV, G. S.

"The calculations of the internal electric fields and electric-field gradients in the perovskite-type compounds with special dielectric properties."

report submitted for 6th Gen Assembly, Intl Union of Crystallography, Rome, 9 Sep 63.

Karpov Inst of Physical Chemistry, Moscow.

KISELEV, S.V.; KSHNYAKINA, A.N.; OZEROV, R.P.; ZHDANOV, G.S.

Neutron diffraction examination of magnetic ordering and atomic displacements in certain iron-containing Perovskite type substances with special dielectric properties. Fiz. tver. tela 5 no.11: 3312-3316 N '63. (MIRA 16:12)

1. Nauchno-issledovatel'skiy fiziko-khimicheskiy institut imeni L.Ya.Karpova, Moskva.

VENEVTSEV, Yu. N.; LYUBIMOV, V. N.; SOLOV'YEV, S. P.; ZHDANOV, G. S.

Calculation of internal electric fields and their gradients in perovskite compounds with specific dielectric properties. Izv. AN SSSR. Ser. fiz. 28 no. 4:630-635 Ap '64.

(MIRA 17:5)

ZHDANOV, G.S.; IBRAIMOV, N.S.; KUZ'MIN, R.N.

Mössbauer effect used in the study of chemical bonds in metals and alloys. Izv.AN SSSR.Neorg.mat. 1 no.10:1660-1672 O '65. (MIRA 18:12)

1. Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta imeni M.V.Lomonosova. Submitted July 5, 1965.

IBRAIMOV, N.S.; KUZ'MIN, R.N.; ZHDANOV, G.S.

The Mossbauer effect in compounds of a fluorite type structure ($IrSn_2$ and $PtSn_2$). Zhur.eksp. i teor.fiz. 49 no.5:1389-1393 N '65. (MIRA 19:1)

1. Moskovskiy gosudarstvennyy universitet.

L 23747-66 EWT(1)/EWT(m)/EWA(d)/EWP(t) IJP(c) JD/JG

ACC NR: AP6007212 SOURCE CODE: UR/0056/66/050/002/0330/0338

AUTHORS: Kuz'min, R. N.; Ibraimov, N S.; Zhdanov, G. S.

ORG: Moscow State University (Moskovskiy gosudarstvennyy universitet)

TITLE: Mossbauer effect in Heusler alloys 18

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50, no. 2, 1966, 330-338

TOPIC TAGS: Mossbauer spectrum, absorption spectrum, ternary alloy, line shift, heat effect, line splitting, alloy phase diagram

ABSTRACT: The authors investigated the Mossbauer absorption spectra of ternary Heusler alloys namely Co_2MnSn, Ni_2MnSn, Cu_2MnSn, Cu_2FeSn, Cu_2CoSn, and Cu_2NiSn, using Sn^{119} as the Mossbauer isotope. The samples were synthesized in quartz ampoules in vacuum from components in stoichiometric ratio. The Mossbauer spectra were recorded with apparatus in which the absorber moved at a constant velocity, using a Mg_2Sn source. The absorbers had the same thickness with respect to

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ACC NR: AP6007212

tin as the source (15 mg/cm^2) and were made of powders of beryllium dioxide alloys. The source and the absorbers were kept at 77K. Two different heat treatments were used -- quenching after annealing, and annealing followed by slow cooling. The Mossbauer lines and the chemical shifts of the different compounds are described briefly. The results show that the Mossbauer spectrum is sensitive to the heat treatment. The most interesting Mossbauer spectrum was obtained for Cu_2MnSn after quenching, since the Mossbauer line was split into nine components of almost equal intensity, instead of the six allowed by the splitting of the nuclear levels of Sn^{115} in a magnetic field. This anomaly in the spectrum may be due to a disordered distribution of the tin atoms in the nonequivalent positions in the structure of this compound. The internal magnetic field at the tin nucleus was determined for the compounds Co_2MnSn and Ni_2MnSn and found to be 42.0 and 70.5 kOe, respectively. The results are compared with those obtained by others and the causes for the differences discussed. It is noted in the conclusion that although the Mossbauer data yield much valuable information on the structure, properties, and phase transitions of Heusler alloys, in some cases the spectrum structure is too

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ACC NR: AP6007212

complicated to be able to obtain quantitative results, so that the Mossbauer method must be used in conjunction with other methods. Orig. art. has: 5 figures and 3 tables.

SUB CODE: 20/ SUBM DATE: 03Aug65/ ORIG REF: 008/ OTH REF: 013

Card 3/3

L 25777-66 EWT(1)
ACC NR: AP6016368 SOURCE CODE: UR/0070/65/010/005/0715/0722

AUTHOR: Vertsner, V. N.; Zhdanov, G. S.

63

ORG: State Optical Institute (Gosudarstvennyy opticheskiy institut)

B

TITLE: Electron microscopic study of the low-temperature varieties of ice

SOURCE: Kristallografiya, v. 10, no. 5, 1965, 715-722

TOPIC TAGS: electron microscopy, crystallography, ice, cryogenics, freezing

ABSTRACT: Varieties of ice forming in a vacuum on cooled substrates owing to the condensation of residual water vapors were investigated. The formation of the hexagonal, cubic, and amorphous varieties was observed in the temperature range of -90 to -160°C. The amorphous form changed to cubic on heating to a temperature above -140°C. No transition of the cubic form to the hexagonal was observed, since at -70 to -80°C the thin films of ice rapidly evaporated. The role of organic impurities in the variation in temperature of the formation and sublimation of ice is examined. The dependence of the nature of crystal formation on the substrate temperature, cooling rate, and water-vapor pressure is traced. The dimensions of the crystals forming on the substrate decreased with decreasing temperature of the object and increasing rate of cooling. It is concluded that the findings of this investigation may be utilized in selecting a rational regime of the cooling of biological objects. As the substrate temperature gradually decreases,

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UDC: 621.385.833:549.511.1

L 25777-66

ACC NR: AP6016368

0

the hexagonal form of ice appears and changes over first, to the cubic and then, to the amorphous form. The temperature range of formation of the hexagonal modification is the broader the higher the water-vapor pressure above the object is. Cubic ice is obtained without any traces of hexagonal ice only in the presence of a vacuum on the order of $1 \cdot 10^{-5}$ mm Hg and a temperature below -130°C. The amorphous form of ice arises at a temperature below -150°C. As the temperature rises, the thin films of amorphous ice completely change to the cubic form. A decrease in substrate temperatures is accompanied by a decrease in the dimensions of the crystals forming on the substrate and by an increase in the tendency of preferential growth in the plane of the substrate. The presence of free hydrogen bonds at the crystal surfaces causes a tendency of the crystals to intergrow mutually and form long polycrystalline chains. This process is particularly marked on heating. Organic impurities may play a major role, wven with careful shielding of the object, resulting in a lower formation point and a higher evaporation point of ice. The investigation of ice by means of microanalytic techniques leads to a better understanding of the nature of the processes that occur during the freezing of different water-containing objects, primarily biological, and is a means of selecting optimal conditions for the freezing, storage, and thawing of preparations. Orig. art. has: 5 figures and 1 table. [JPRS]

SUB CODE: 20 / SUBM DATE: 02Aug64 / ORIG REF: 001 / OTH REF: 000

Card 2/2

FEDULOV, S.A.; VENEVTSEV, Yu.N.; ZHDANOV, G.S.; DZHMUKHADZE, D.F.

X-ray diffraction and dielectric study of the system $PbTiO_3$ - $LaFeO_3$. Izv. AN SSSR. Ser. fiz. 26 no.3:357-361 Mr '62. (MIRA 15:2)

1. Fiziko-khimicheskiy institut im. L.Ya. Karpova.
(Electric measurements)
(X-ray crystallography) (Systems (Chemistry))

KISELEV, S.V.; OZEROV, R.P.; ZHDANOV, G.S.

Detection of magnetic ordering in the ferroelectric BiFeO_3 by neutron diffraction study. Dokl.AN SSSR 145 no.6:1255-1258 Ag '62. (MIRA 15:8)

1. Fiziko-khimicheskiy institut im. L.Ya.Karpova. Predstavleno akademikom N.V.Belovym.

(Ferroelectric substances—Magnetic properties)
(Neutron diffraction crystallography)

S/181/62/004/012/027/052
B125/B102

AUTHORS: Lyubimov, V. N., Venevtsev, Yu. N., Solov'yev, S. P., Zhdanov, G. S., and Bakushinskiy, A. B.

TITLE: The dipole structure and the internal electric fields in $PbZrO_3$

PERIODICAL: Fizika tverdogo tela, v. 4, no. 12, 1962, 3543-3550

TEXT: The most probable values of the internal electric fields and field-induced electron dipoles are calculated for a $PbZrO_3$ crystal on the basis of the model of point dipole structure. Using the method developed by S. P. Solov'yev, Yu. N. Venevtsev, G. S. Zhdanov (Kristallografiya 3, 473, 1958), the determination of the 28 different projections of the electron dipole moments was reduced to the solution of a system of 28 linear algebraic equations for 28 unknowns. The structural sums which are necessary for the set-up of these equations describe the fields of the infinite sublattices of the unit charges and unit dipoles, the number of which exceeds by far 1000. Both the structural sums and the system of

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The dipole structure and the ...

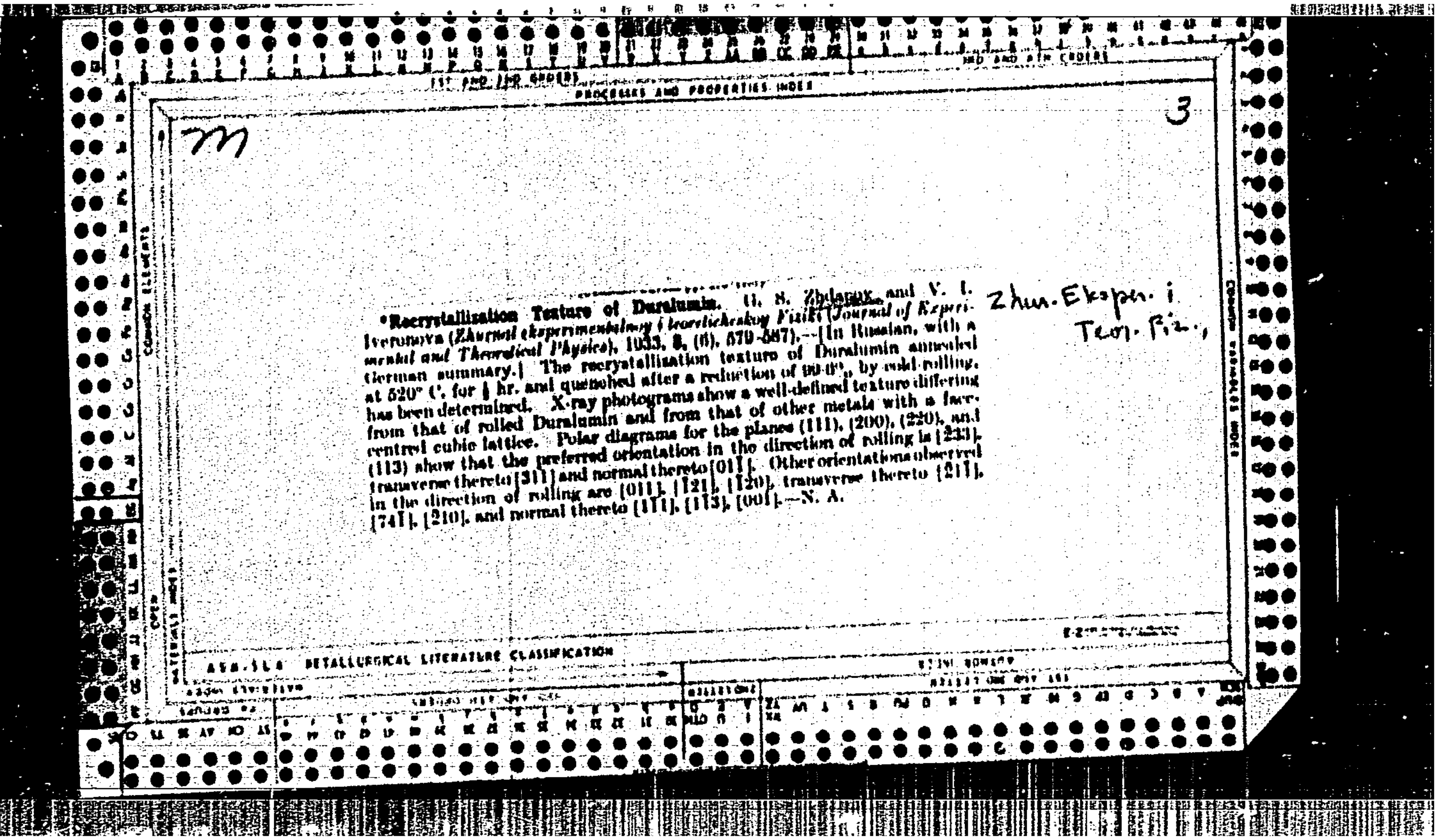
equations itself were calculated in various modifications using the electronic computer "Strela". The effect of all structure sublattices on each of the 40 atoms incorporated in the elementary cell was taken into account. The variant P_S was determined by extrapolation for the parameters $e_{Pb} = 1.27$, $e_{Zr} = 1.73$, $e_O = -1$, $\alpha_{Pb} = 4.32 \cdot 10^{-24}$ cm^3, $\alpha_{Zr} = 0.80 \cdot 10^{-24}$ cm^3, $\alpha_O = 2.26 \cdot 10^{-24}$ cm^3. e_i denotes the effective charges and α_i denotes the electron polarizabilities of the ions. The small value of P_S within a certain temperature interval makes it possible to establish a correlation between the data obtained from structure and those from dielectric studies. At room temperature, the ion polarization for the above-mentioned values of the parameters is compensated by electron polarization. Hence, the $PbZrO_3$ crystal is antipolarized and very similar to an anti-electret. Results, similar in principle, are obtained for any of the ten crystallographic polar classes of pyroelectrics (electrets). It is assumed that at least the direction of most of the projections of the electron dipole moments and of the internal fields corresponds to the

Card 2/3

ZHDANOV, G. S.

"Theory of Recrystallization," E.F.Bakhmet'yev, A.A.Bochvar, G.S.Zhdanov, and Ya. S. Umanskiy. J. Tech. Phys. (USSR) 2, 161-72, 1932. Zhur. Tekh. Fiz.,

Nuclei, recuperation, energy distribution and polycrystallinity are discussed. F.H.Rathmann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m

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*__Recrystallization Texture of Duralumin.__ G. S. Zhdanov and V. I. Iveronova (*Zhurnal eksperimental'noy i teoreticheskoy Fiziki* (*Journal of Experimental and Theoretical Physics*), 1933, 3, (6), 579-587).—[In Russian, with a German summary.] The recrystallization texture of Duralumin annealed at 520° C. for ½ hr. and quenched after a reduction of 90·0% by cold-rolling has been determined. X-ray photograms show a well-defined texture differing from that of rolled Duralumin and from that of other metals with a face-centred cubic lattice. Polar diagrams for the planes (111), (200), (220), and (113) show that the preferred orientation in the direction of rolling is [233], transverse thereto $[31\bar{1}]$ and normal thereto $[01\bar{1}]$. Other orientations observed in the direction of rolling are $[01\bar{1}]$, $[\bar{1}21]$, $[\bar{1}20]$, transverse thereto $[21\bar{1}]$, $[74\bar{1}]$, $[\bar{2}10]$, and normal thereto $[1\bar{1}1]$, $[1\bar{1}3]$, $[00\bar{1}]$.—N. A.

Zhur. Eksper. i Teor. Fiz.,

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m

X-Ray Analysis of the Structure Changes on Cold-Deformation of Metals. G. S. Zhdanov (*Zavodskaya Lab.*, 1934, 3, 48–56, 156–158; *C. Abs.*, 1935, 29, 91). —[In Russian.] The discussion of the structural and physical changes of various metals produced by cold-rolling and -drawing, and the technique of X-ray investigation, is based on the literature. A *bibliography* is given.—S. G.

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*The Texture of Rolled α-Brass. G. S. Zhdanow and V. I. Iveronova (Zhurnal Tekhnicheskoy Fiziki (J. Tech. Physics), 1934, 4, 911-924).—[In Russian.] The textures of copper and 5 α-brasses with different zinc contents and the pole figures (111), (200), and (220) for the three degrees of intensity, indicate that the texture of the metal depends on the zinc content up to 10%, when the brass texture is established, and this changes only slightly with increase of zinc. Zinc produces a merging of the (111) and (100) textures of copper, but has no effect on the (112) texture as shown by the pole figures and by photographs taken with a special texture camera. The latter also indicates that the number of unoriented crystals increases with increase in the zinc content. The texture of α-brasses with a low zinc content is analogous to that of gold and silver.—N. A.

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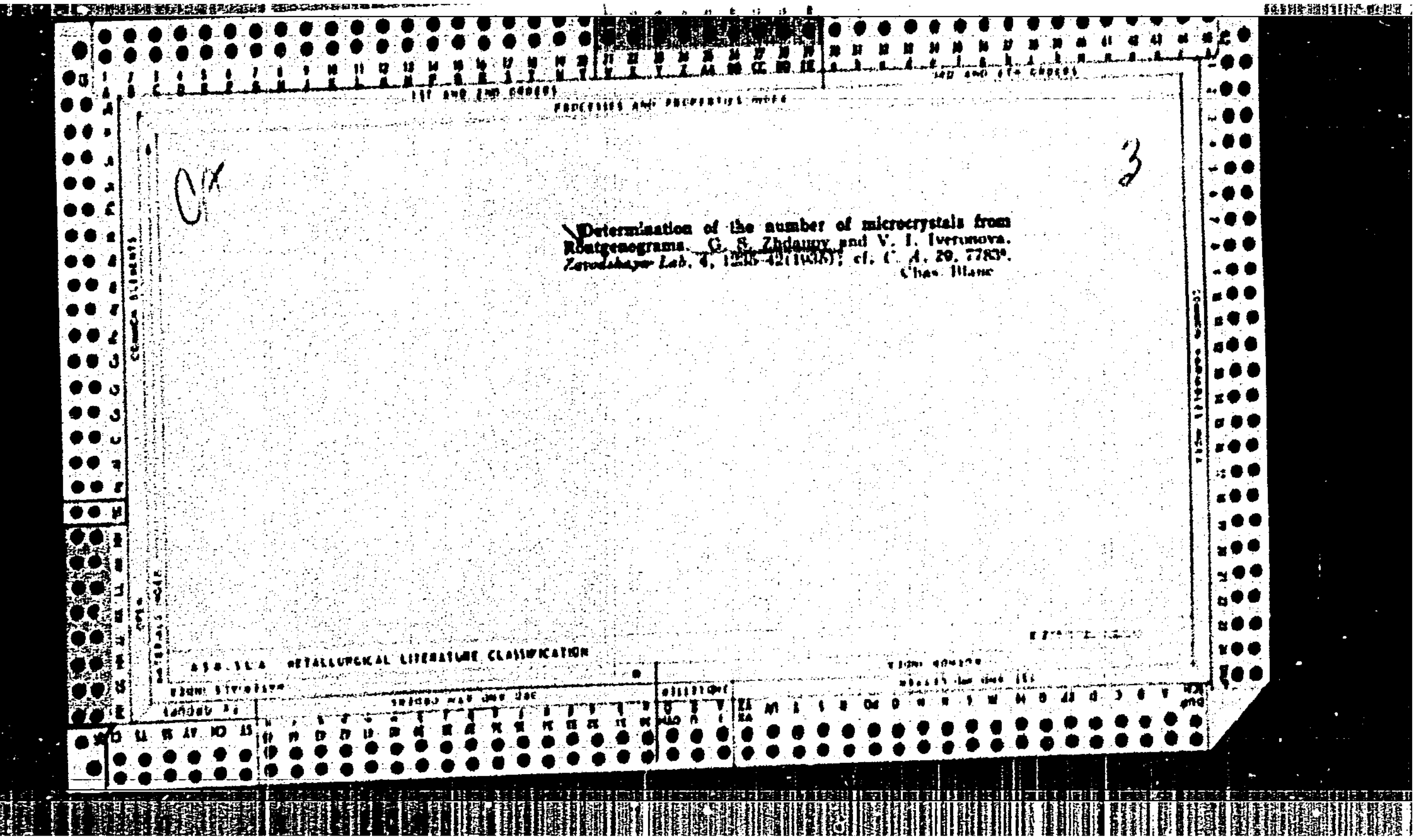

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Cr

3

Determination of the number of microcrystals from Röntgenograms. G. S. Zhdanov and V. I. Iveronova. *Zavodskaya Lab.* 4, 1235-42(1935); cf. C. A. 29, 7783ᵉ.
Chas. Blanc

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ca

2

Crystal structure of gallium nitride. J. V. Lirman and H. S. Zhdanov. *Acta Physicochim. U. R. S. S.* 6, 306 (1937).—GaN (prepd. as a friable gray powder by heating Ga in NH_3 at 1200°) has hexagonal structure of the wurtzite type, with a 3.180 ± 0.008, c 5.125 ± 0.010 A.; c/a = 1.622.

B. C. A.

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9

The texture of rolled silver. G. S. Zhdanov and E. A. Shuvinskaya. *J. Tech. Phys.* (U. S. S. R.) 7, 2102-3 (1937).—Pole figures are given for Ag which had been rolled from 65 mm. to 0.03 mm. The texture of this specimen can be described with the use of 2 groups of crystal orientations: *W* 112 *α*, *N* 110, *Q* on 1 and *W* 100, *N* 011, *Q* 011; the angle between the texture axis (112 *α*) and the direction (112) was about 5-8°. The texture differed essentially from that of Al and of Cu. **The texture of rolled solid solutions of metals with cubic, face-centered lattices.** *Ibid.* 2104-9.—A study was made of the pole figures of the following alloys: (*a*) 96.4% Al and 3.6% Mg, (*b*) 97.3% Al and 2.7% Zn, (*c*) 94.5% Cu and 5.5% Mn, (*d*) 95.8% Cu and 4.2% Al. The Cu alloys were rolled from 2.5 mm. to 0.10 and 0.15 mm.; the Al alloys were rolled from 1.5 mm. to 0.1 and 0.09 mm. The texture of the Al alloys corresponded to that of pure Al. The texture of the Cu alloys was similar to that of rolled Ag with the following orientations *W* 112 *α*, *N* 110, *Q* on 1 and *W* 100, *N* 011, *Q* 011. A classification is given of the textures of rolled solid solns. with faced-centered lattices, in which Al-Zn, Al-Mg and Al-Cu correspond to the type of Al, Cu-Ni corresponds to that of Cu, Au-Ag to the type of Au or of Ag depending upon which is the predominating constituent, Cu-Mn and CuAl correspond to the type of Au, and Cu-Zn and Cu-Sn correspond to the type of Ag. Through *Chem. Zentr.* 1939, I, 341.

W. A. Moore

Zhur. Tekh. Fiz.

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*The Texture of Rolled Solid Solutions of Metals with Face-Centred Cubic Lattices. G. S. Zhdanov and E. A. Shumskaya (*Zhur. Tekhnich. Fiziki* (*J. Tech. Physics*), 1937, 7, 2194–2199; *Chem. Zentr.*, 1939, 110, (I), 341).—[In Russian.] A study was made of the pole figures of the following alloys: 3·6% magnesium-aluminium, 2·7% zinc-aluminium, 5·5% manganese-copper, and 4·2% aluminium-copper. The copper alloys were rolled from 2·5 to 0·10 and 0·15 mm., the aluminium alloys from 1·6 to 0·1 and 0·09 mm. The texture of the aluminium alloys corresponded to that of pure aluminium.

The texture of the copper alloys was similar to that of rolled silver with the orientations W 112x, N 110, Q $xx\bar{1}$ and W 100, N 011, Q $0\bar{1}\bar{1}$. A classification is given of the textures of rolled solid solutions with face-centred lattices, in which aluminium-zinc, aluminium-magnesium, and aluminium-copper alloys correspond to the aluminium type; copper-nickel alloy corresponds to copper; gold-silver alloy to gold or silver, depending on which is the larger constituent; copper-manganese and copper-aluminium alloys to gold; and copper-zinc and copper-tin alloy to silver.

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The relation between rolled texture and edge-centered or body-centered lattices. G. S. Zhdanov and I. P. Shapiro. *J. Tech. Phys.* (U. S. S. R.) 7, 2230-7(1937); *Chem. Zentr.* 1938, II, 3515.—In the rolling of α-Fe two mutually perpendicular axial textures were observed which corresponded to the extension and compression textures, the latter being axially sym. In the case of Fe (body-centered) and Al (edge-centered) these 2 textures are convertible into one another. The crystal orientations of the rolled texture of Al and those of Fe are superposed when there is a rotation of 90° in the transverse direction.

M. G. Moore

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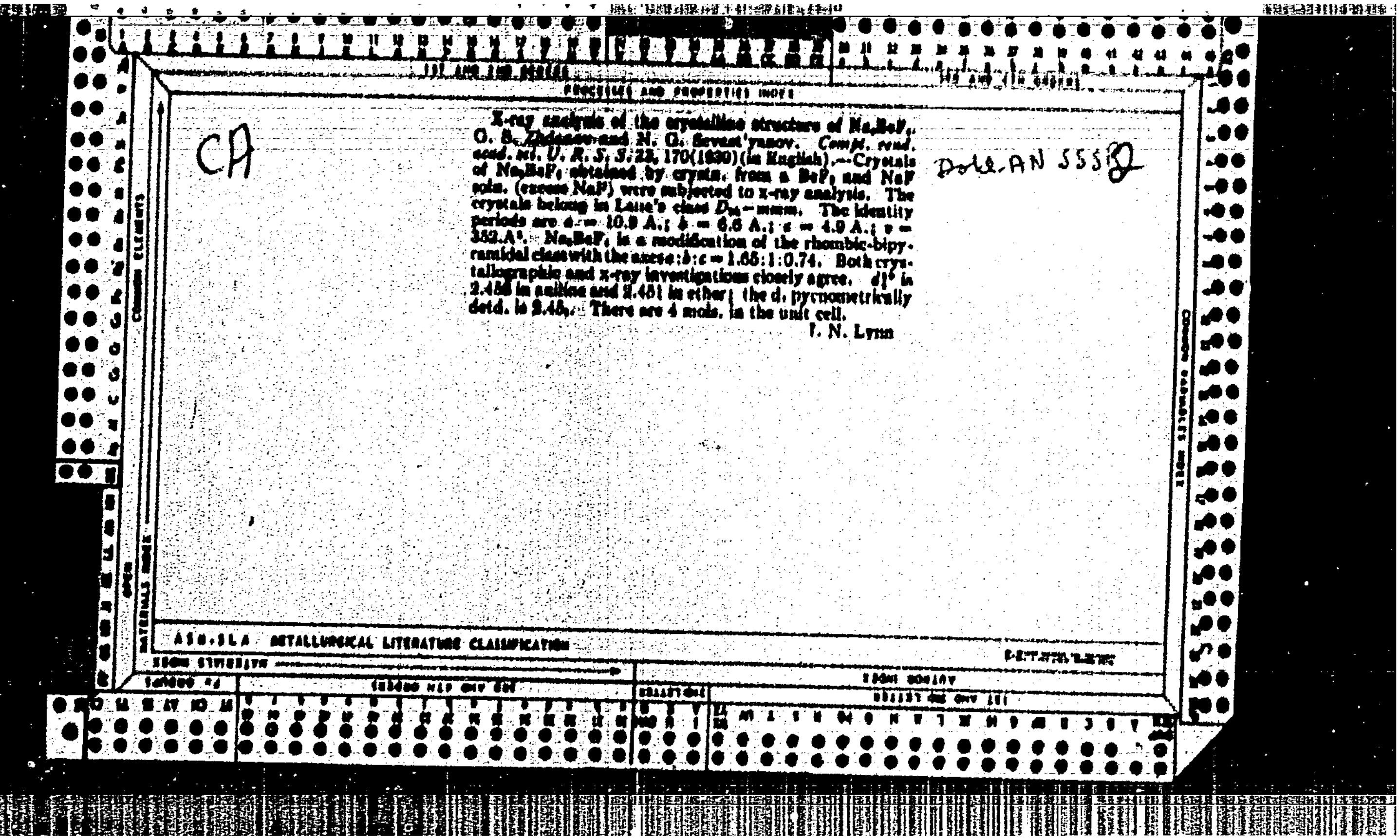

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CA

X-ray analysis of the crystalline structure of Na_2BeF_4. G. S. Zhdanov and N. G. Sevast'yanov. *Compt. rend. acad. sci. U. R. S. S.* 22, 170(1939)(in English).—Crystals of Na_2BeF_4 obtained by crystn. from a BeF_2 and NaF soln. (excess NaF) were subjected to x-ray analysis. The crystals belong in Laue's class D_{2h}—mmm. The identity periods are a = 10.9 A.; b = 6.6 A.; c = 4.9 A.; v = 352.A^3. Na_2BeF_4 is a modification of the rhombic-bipyramidal class with the axes $a:b:c$ = 1.65:1:0.74. Both crystallographic and x-ray investigations closely agree. d_4^0 is 2.458 in aniline and 2.451 in ether; the d. pycnometrically detd. is 2.45. There are 4 mols. in the unit cell.

I. N. Lynn

Dokl. AN SSSR

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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Ca ✓

X-ray methods of determining the size and shape of submicroscopic crystals. G. S. Zhdanov. *Zavodskaya Lab.* 9, 666-71, 738-40(1940).—A review of the literature with twenty-five references. B. Z. Kamich

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lb

Dokl AN SSSR 2

Determination of the Bravais lattice and the space group. G. S. Zhdanov and N. G. Sevast'yanov. *Compt. rend. acad. sci. U. R. S. S.* 26, 80(1940)(in English).—A graphical method based on the reciprocal lattice was used for indexing photographs presented in the first paper (*C. A.* 33, 9081). The indexes *hkl* for all observed reflections using the vector $\bar{H}$ could be expressed in the linear form $\bar{H} = h\bar{a} + k\bar{b} + l\bar{c} = (0.092h + 0.152k + 0.205l)A^{-1}$. Data on missing spectra are presented. These data show that the crystals examd. have the primitive Bravais lattice and as they belong to the holohedral rhombic class they can be detd. only for a single characteristic space group D_{2h}^{16}. Clarence F. Hiskey

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ZHDANOV, G.S.

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Ca

Nature of the chemical bond in graphite and boron nitride. A. Kh. Breger and G. Zhdanov. *Compt. rend. acad. sci. U. R. S. S.* 28, 629-31(1940)(in English).—The one-dimensional Fourier series $\rho(z) = (1/c) \sum_{-\infty}^{+\infty} F_m \cos 2\pi lz$ is built up for the crystal structure of the graphite and BN layer lattices. The distribution of electron density perpendicular to the 001 plane in these substances is similar. About 16% of the electron d. is between layers. This corresponds to one electron per C atom or two per pair of B and N atoms. These electrons account for the elec. cond. of graphite and for its ability to form interstitial structures with alkali metals, acids, etc. The electron average of one per atom for BN indicates that the layers consist approximately of B^-N^+ ions, each of which has an electronic configuration and certain phys. properties like C. The ion layers explain the lack of metallic cond. of boron nitride and its transparency, and suggest the existence of "inorganic benzene" $B_3N_3H_6$ with structure and properties like C_6H_6. S. R. Korman

A18-5LA METALLURGICAL LITERATURE CLASSIFICATION

MA

Zhdanov, G. S., and Ya. S. Umanskiy. *X-Ray Metallography.* Part I. Second edition. [In Russian.] Pp. 302. 1941. Moscow and Leningrad: Metallurgizdat. (13.50 Rbl.)

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Quantitative Determination of Intensities of X-Ray Reflections in Structure Analysis. I.—Visual Methods of Measuring Intensities in X-Ray Photographs of Single Crystals with the Aid of a Comparison Scale. (G. S. Zhdanov and V. P. Kotov (*Zhur. Fiz. Khim.*, 1941, 15, (7/8), 918-921; *Phot. Abs.*, 1943, 23, 58).—[In Russian.] Zh. and K. point out that in Robertson's method for the visual comparison of intensities of X-ray reflections, based on the ratio of the intensities of K_α and K_β reflections, this ratio varies with the angle of reflection (θ), and in the case of copper radiation large errors occur for values of $\theta > 50°$. The authors prefer visual comparison of the reflections with a series of spots (made on the same film if possible) produced artificially without a crystal, the exposure times increasing in geometrical progression.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

A-9

Crystal structure of boron carbide (B_4C). G. S. ZHDANOV AND N. G. SEVAST'YANOV. *Compt. rend. acad. sci. U.R.S.S.*, 32, 432-34 (1941) (in English); *Chem. Abs.*, 37, 1911 (1943).—Rotation and oscillation photographs of crystals obtained from melts indicate a unit cell with $a = 5.60$ and $c = 12.1$ a.u. containing 3 C atoms. Probable space group D_{3d}^5. B atoms are in positions ($6h_1$ and $6h_2$) with 6-fold symmetry, C at $2c$ with 4-fold coordination and at $1b$ with 2-fold coordination. Distances: B-B 1.74 to 1.80 and B_1-C_{II} 1.63 a.u. The $6h_1$ complex consists of zigzag 6-membered rings, with two B atoms on a side in contact, bound together in layers perpendicular to the c axis, neighboring layers being connected by B in $6h_2$ position. See *Ceram. Abs.*, 23 [8] 133 (1944).

Dokl. AN SSSR,

ZHDANOV, G. S.

"An X-Ray Determination of the Unit Cell of $K_3Co(CN)_6$ Crystals," Acta Physicochimica, Vol. XVI, No. 1-2, 1942. The Karpov Inst. of Phys. Chem., X-Ray Lab., Moscow..

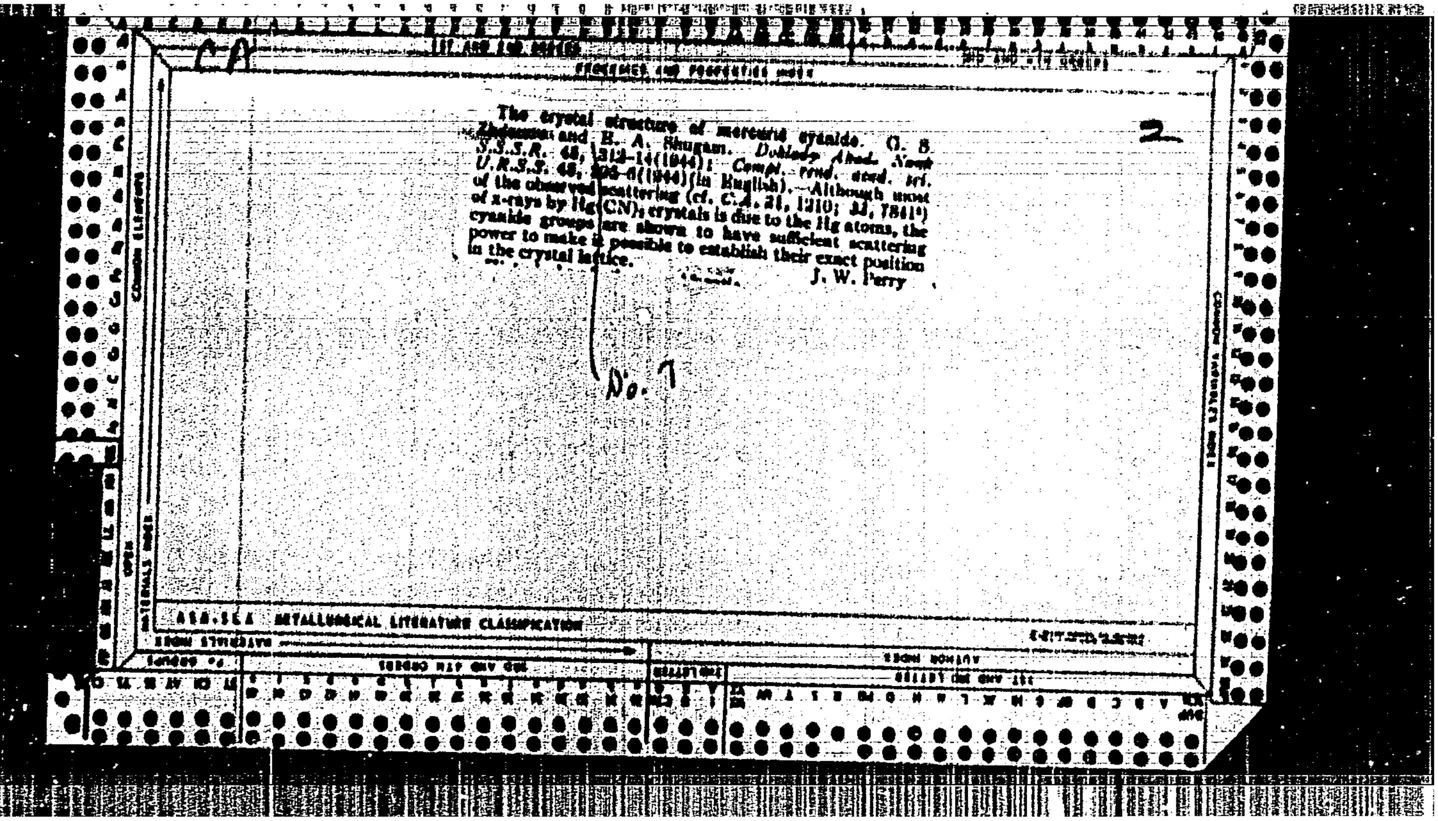
CA

2

X-ray investigation of the structure of B_4C. G. S. Zhdanov and N. G. Sevast'yanov. *J. Phys. Chem.* (U. S. S. R.) 17, 326-35(1943); *cf. C. A.* 37, 1911[1].—The x-ray rotation photographs on [001] and [120] indicate the periods a = 5.60 Å. and c = 12.1 Å. The Laue symmetry is $\bar{3}m - D_{3d}$. The possible space groups are D_{3d}^5, D_3^7 and C_{3v}^5. B_4C belongs formally to the structure type AB, and may be considered as a deformed NaCl type; the lattice is close-packed with 12 atoms of B and 3 atoms of C; the distance B — C is 1.60 Å. The rhombic cell consts. are a = 5.17 Å.; α = 65° 45'. F. H. Rathmann

Zhur. Fiz. Khim.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



CB

1ST AND 2ND DIGITS

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2

The crystal structure of mercuric cyanide. G. S. Zhdanov and E. A. Shugam. *Doklady Akad. Nauk S.S.S.R.* 45, 312-14(1944); *Compt. rend. acad. sci. U.R.S.S.* 45, 306-9(1944)(in English).—Although most of the observed scattering (cf. *C.A.* 21, 1210; 33, 7841⁹) of x-rays by $Hg(CN)_2$ crystals is due to the Hg atoms, the cyanide groups are shown to have sufficient scattering power to make it possible to establish their exact position in the crystal lattice.

J. W. Perry

No. 7

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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CA

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3RD AND 4TH ORDERS

2

Superperiodicity in silicon carbide crystals. G. S. Zhdanov and Z. Minervina (Karpov Inst. Phys. Chemis~~try). J.~~ *Phys.* (U.S.S.R.) 9, 244-5(1945).—X-ray study of a certain SiC crystal showed secondary diffraction maxima indicating periodicity of 240 A., corresponding to 96 elementary SiC layers. This recalls the discovery by H. Ott (*Sommerfeld-Festschr.*, 208-14(1928)) of a SiC crystal showing periodicity of 120 A., corresponding to 51 layers. The superperiodicity must arise from kinetic factors affecting crystal growth, such as impurities accumulating on the face of a growing crystal, or influence of neighboring crystals having different orientations.

A. O. Allen

Zhu. Fi.,

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

ZHDANOV, G.S.

C4

Determination of the crystal symmetry from the x-ray diffraction patterns. I. Univocal determination of the crystal symmetry from x-ray diffraction patterns and Friedel's law. G. S. Zhdanov (Karpov Physicochem. Inst., Moscow). *J. Exptl. Theoret. Phys.* (U.S.S.R.) 15, 703-6(1946)(in Russian).—By Friedel's law, evaluation of x-ray pattern[illegible] not in general solve the question of presence or abse[illegible] of an inv[illegible]ion center. Detn. of the Laue symmetry [illegible] its only assignment to one of the 120 "x-ray groups" out of the 210 space groups. However, analysis of the sy[illegible]try elements and the geometry of the laws of extincti[illegible] the reciprocal (F^2) lattice shows that, [illegible] the case of definite combinations of the symmetry el[illegible]ents, presence or absence of an inversion center can [illegible] univocally deduced and the exact space group detd. from x-ray diffraction. Presence of an inversion center can be established in the case of 33 groups. It arises from a combination of secondary axes with a perpendicular symmetry plane or from 3 mutually perpendicular symmetry planes. *Proof* of the absence of an [illegible]sion center is forthcoming in the case of 26 groups, on the basis of the following: screw-axes cannot combine with perpendi[illegible] mirror planes; out of two mutually perpendicular symmetry planes, parallel to a 2-fold screw-axis, one must be a glide plane; 2 perpendicular glide planes with diagonal displacement cannot combine with a perpendicular mirror plane. The 33 + 26 space groups, corresponding to 9 out of 11 Laue classes, are tabulated.

II. Rational extinction tables for the determination of x-ray groups. G. Zhdanov and V. Pospelov. *Ibid.* 709-20.—On the basis of the foregoing analysis, tables are drawn up for all of the 11 Laue classes, relating the possible space groups to the 120 "x-ray groups" and their extinctions. The concept of "x-ray group" is equiv. to the "diffraction symbol of space group" introduced by M. J. Buerger (*X-ray crystallography* (*C.A.* 36, 4768)) who, however, erroneously counts 121 such groups instead of 120, and gives no extinction tables. The present principle of classification of extinctions is possibly similar to that of Menzer (*C.A.* 38, 6707).

N. Thon

No. 12 6 ③

Zhur. Eksper. i Teor. Fiz.

ASM-SLA METALLURGICAL LIT

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M

3

*On the Texture of Pressed Metallic Selenium.** G. S. Zhdanov and Yu. V. Sharvin (*Zhur. Fiz. Khim.*, 1945, 19, (3), 160-166).—[In Russian.] The preferred orientation of selenium crystals pressed under a pressure of 7 tons/sq.cm. at 135° C. for 1 hr., and subsequently annealed at 210° C. for 2-4 hr., was studied in a Debye camera using Co radiation and iron filters. It was found that in the case of trigonal selenium (11$\bar{2}$0) planes tend to lie in a plane perpendicular to the compression axis, irrespective of the subsequent annealing treatment. This result can be explained by assuming that the slipping planes of selenium are the same as those of tellurium, *i.e.*, (10$\bar{1}$0) planes.—V. K.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

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2

The crystal structure of cyanides. II. Structure of cadmium cyanide. E. A. Shugam and O. S. Zhdanov. (Karpov Inst. of Phys. Chemistry, Moscow). *Acta Physicochim. U.R.S.S.* 20, 247-52(1945); cf. *C.A.* 37, 813^9.—$Cd(CN)_2$ crystals were synthesized from gaseous $(CN)_2$ and $Cd(OH)_2$. After filtration, crystals of 0.4 mm. were deposited from the soln. by drying. X-ray powder photographs were made from the white powder of d. 2.23. The crystal structure thus detd. is isomorphous with $Zn(CN)_2$. The space group is T_d. The dimensions of the body-centered cube are a = 6.32 A., N = 2, d_x = 2.17. Electronic structures are discussed. **III. Structure of gold cyanide.** O. S. Zhdanov and E. A. Shugam. *Ibid.* 253-8.—The structure of AuCN, similar to AgCN, is built up from chain-like mols. M–C–N–M–C–N, but the lattice is hexagonal and not rhombohedral, the Au atoms and the CN groups lying in alternate planes. The unit cell contains 1 mol.; c = 5.09 A., a = 3.40 A., d_x = 7.30, space group D_{3h}^1 or D_{6h}^1. The difference in structure between AuCN and AgCN is attributed to the prevalence of a covalent structure with a double bond. S. P.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

C.A.

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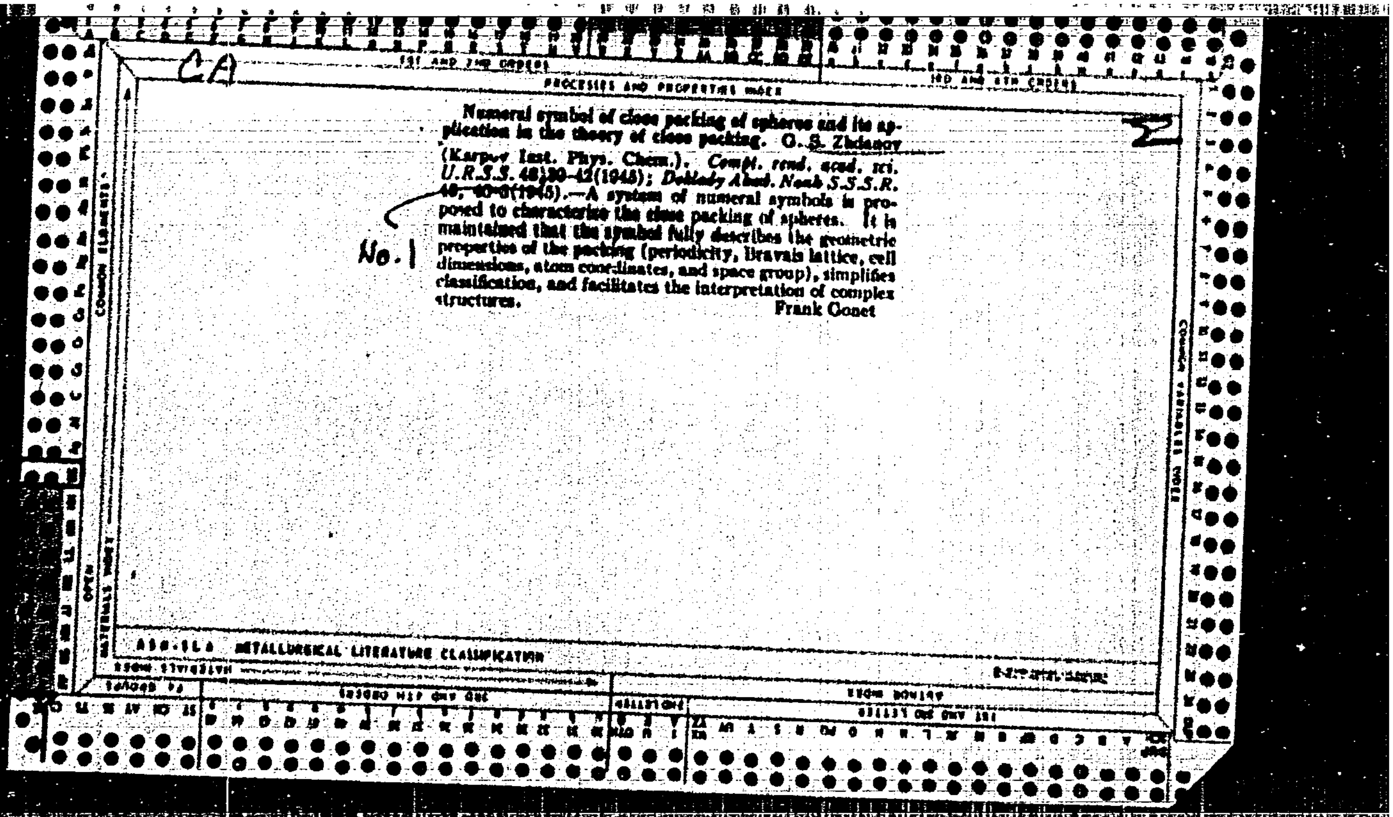
2

X-ray investigations of Carborundum. H. Zhdanov and Z. Minervina. *Acta Physicochim. U.R.S.S.* 10, 380-94(1945)(in English).—A method was developed for analyzing SiC powder by means of x-ray patterns (accuracy 5-10%). Com. samples are not uniform; form II (hexagonal) is most frequently met, but III (also hexagonal) is also common; IV (cubic) has been observed in American samples, but I and V (both rhombohedral) have not been detected. All five forms "are built according to the laws of close packing [d = 1.89 A.]; i.e., they are binary tetrahedral (diamond-like) structures. The numerical symbols of the SiC structures are made up of twos and threes. The packing with the simplest symmetric formula 1.1 (structure of the sphalerite type) is unstable in all types of SiC. The structures with packings one elementary layer thick and more than three layers thick are also unstable." Packing symbols are 3.3 for I, 3.2 for II, 2.2 for III, 0.0 for IV, and [illegible] for V. V may be regarded as a slightly distorted II structure. Oscar T. Quimby

No. 3

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA

1ST AND 2ND ORDERS

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3RD AND 4TH ORDERS

Numeral symbol of close packing of spheres and its application in the theory of close packing. O. S. Zhdanov (Karpov Inst. Phys. Chem.). *Compt. rend. acad. sci. U.R.S.S.* 48, 39-42(1945); *Doklady Akad. Nauk S.S.S.R.* 48, 40-3(1945).—A system of numeral symbols is proposed to characterize the close packing of spheres. It is maintained that the symbol fully describes the geometric properties of the packing (periodicity, Bravais lattice, cell dimensions, atom coordinates, and space group), simplifies classification, and facilitates the interpretation of complex structures.

Frank Gonet

No. 1

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION